

Substitute Form PTO-1449 (Modified) U.S. Department of Commerce Patent and Trademark Office Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR § 1.96(b))	Attorney's Docket No. 14414-025001	Application No. 10/775,836
	Applicant Diyun Huang et al.	
	Filing Date February 10, 2004	Group Art Unit 1626

U.S. Patent Documents

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
DL	1	4,421,761	12-1983	Nagai et al.			
DL	2	5,080,991	01-1992	Ono et al.			
DL	3	5,290,630	03-1994	Devonald et al.			
DL	4	5,670,091	09-1997	Marder			
DL	5	5,679,763	10-1997	Jen			
DL	6	5,696,243	12-1997	Beckmann et al.			
DL	7	5,783,649	07-1998	Beckmann et al.			
DL	8	5,834,575	11-1998	Honda et al.			
DL	9	6,090,332	07-2000	Marder			
DL	10	6,130,339	10-2000	Tan et al.			
DL	11	6,197,921	03-2001	Tan et al.			

Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
DL	12	195 32 828	03-1996	DE			Abst.	
DL	13	44 01 911	08-1995	DE			Abst.	
DL	14	44 16 476	11-1995	DE			Abst.	
DL	15	0 414 185	02-1991	EP				X
DL	16	0 637 774	02-1995	EP				X
DL	17	0 729 056	08-1996	EP				X
DL	18	0 754 709	01-1997	EP			Abst.	
DL	19	08-108624	04-1996	JP			Abst.	
DL	20	2000-089268	03-2000	JP			Abst.	
DL	21	2001-085713	03-2001	JP			Abst.	
DL	22	61-65881	04-1986	JP				
DL	23	2-244059	09-1990	JP				
DL	24	3-31850	02-1991	JP				

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DL	25	WO 01/53746	07-2001	WIPO				
DL	26	WO 01/96409	12-2001	WIPO				

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
DL	27	Kaneko et al., CA131: 20257, 1999
DL	28	Nishimoto et al., CA126: 218690, 1997
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DL	30	Kafuku et al., CA122: 108888, 1995
DL	31	Chiba et al., CA122: 58182, 1995
DL	32	Ono et al., CA135: 288651, 2001
DL	33	Das et al., CA132: 42429, 1999
DL	34	Hagiwara et al., CA118: 201736, 1993
DL	35	Chemical Abstracts Registry Database search results regarding Registry No. 501910-13-0 database entry date, Search performed on May 19, 2003
DL	36	Dini and Aszodi, "Synthesis of a Dihydroxythiophene Analogue of Catechospirines," <u>Bioorganic & Medicinal Chemistry Letters</u> , 2000, 10:349-352
DL	37	Fleitz and Sutherland, "Investigating the nonlinear optical properties of molten organic materials," <u>Proc. SPIE</u> , 1997, 3146:24-30
DL	38	Halfpenny et al., "Optimisation of substitution at the 2- and 5-positions of 3,4-dialkoxythiophenes via the Mannich reaction: the influences of steric crowding, electrophile reactivity and temperature," <u>J. Chem. Soc., Perkin Trans. 1</u> , 2001, 1:2595-2603
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DL	43	Kane and Gao, "Synthesis of a Series of Conjugated Enyne Polythiophenes II," <u>Polymer Preprints</u> , 1992, 33(2):192-193
DL	44	Kato et al., "N-Substituted chloroacetanilides," <u>Chemical Abstracts</u> , Accession No. 1986:460516, 1986, See also JP 61-65881

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(37 CFR §1.98(b))			

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
DL	45	Mavlinkar & Rangnekar, "Synthesis of 2-(aryl/hetaryl)-azo-3,4-dihydroxy-5-(4-nitrophenyl)-thiophene-1, 1-dioxone derivatives and their dyeing properties," <u>Indian Journal of Fibre & Textiel Research</u> , 1991, 16:282-284
DL	46	Miyaji et al., "Electrophotographic photoreceptor using a charge-transporting compound as a charge-generating substance," <u>Chemical Abstracts</u> , Accession No. 1991:546598, 1991. See also JP 03-31850
DL	47	Miyazaki et al., "Electrophotographic photoreceptor using new photoconductive material" <u>Chemical Abstracts</u> , Accession No. 1991:237611, 1991. See also JP 02-244059
DL	48	Nakamura et al., "Organic electroluminescent device," <u>Chemical Abstract</u> , Accession No. 2001:451353, 2001. See also JP 2001-167885
DL	49	Nelson and Boyd, "Enhanced electro-optic response of layered composite materials," <u>Applied Physics Letters</u> , 1999, 74(17):2417-2419
DL	50	Ng et al., "The Synthesis and Characterisation of Fluorescent Poly(heteroaromatic oxadiazole(s)," <u>Macromolecular Chemistry and Physics</u> , 2001, 202(1):8-13
DL	51	Ogiso et al., "Rewritable optical recording medium including polyheterocyclic dye for high-density laser recording," <u>Chemical Abstracts</u> , Accession No. 2000:715405, 2000. See also JP 2000-280621
DL	52	Ono et al., "Synthesis of Oligo(thienylenevinylene)s Substituted with Alkoxy Groups," <u>Heteroatom Chemistry</u> , 2001, 12(5):414-417
DL	53	Raimundo et al., "Design and Synthesis of Push-Pull Chromophores for Second-Order Nonlinear Optics Derived from Rigidified Thiophene-Based π -Conjugating Spacers," <u>J. Org. Chem.</u> , 2002, 67:205-218
DL	54	Raimundo et al., "Proquinoid acceptors as building blocks for the design of efficient π -conjugated fluorophores with high electron affinity," <u>Chem. Commun.</u> , 2000, pp. 939-940
DL	55	Rangnekar and Mavlinkar, "Synthesis of 5-(4-arylaazo/hetarylaazo-phenyl)-2-hetaryl-3,4-dihydroxy-thiophene derivatives and their application on polyester fibres as disperse dyes," <u>Indian Journal of Fibre & Textile Research</u> , 1992, 17:153-157
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DL	57	Reinhardt et al., "Optical Power Limiting in Solution Via Two-Photon Absorption: New Aromatic Heterocyclic Dyes with Greatly Improved Performance," <u>Proc. SPIE</u> , 1997, 3146, pp. 2-11
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DL	59	Shu et al., "Synthesis and Characterization of Nonlinear Optical Chromophores with Conformationally Locked Polyenes Possessing Enhanced Thermal Stability," <u>Chem. Mater.</u> , 1999, 11(6):1628-1632
DL	60	Turbiez et al., "Mixed π -conjugated oligomers of thiophene and 3,4-ethylenedioxythiophene (EDOT)," <u>Tet. Lett.</u> , 2000, 41:5521-5525
DL	61	Unrow and Reinhardt, "Synthesis of substituted thiophene-benobisthiazole oligomers for molecular weight-third order NLO property correlations," <u>Proc. SPIE</u> , 1992, 1626:450-459
DL	62	Wolff, "Organic Materials for Second-Order Non-Linear Optics," <u>Adv. Phys. Org. Chem.</u> , 1999, 32:121-217
DL	63	Wu et al., "Highly efficient, thermally and chemically stable nonlinear optical chromophores based on the α -perfluoroaryldicyanovinyl electron acceptors," <u>Chem. Commun.</u> , 1999, pp.2391-2392

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DL	64	Dalton, "Polymeric Electro-optic Materials Optimization of Electro-optic Activity, Minimization of Optical Loss, and Fine Tuning of Device Performance," <u>Opt. Eng.</u> , 2000, 39(3):589-595
DL	65	Lee et al., "Optical Intensity Modulator Based on a Novel Electrooptic Polymer Incorporating a High μB Chromophore," <u>IEEE J. of Quantum Electronics</u> , 2000, 36(5):527-532
DL	66	Shi et al., "Low (Sub-1-Volt) Halfwave Voltage Polymeric Electro-optic Modulators Achieved by Controlling Chromophore Shape," <u>Science</u> , 2000, 288:119-122
DL	67	Akoudad et al., "Low Oxidation Potential Tetrathiafulvalene Analogues Based on 3,4-Dialkoxythiophene π -Conjugating Spacers," <u>J. Org. Chem.</u> , 1999, 64:4267-4272
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DL	69	Chemical Catalogs Database (American Chemical Society), Accession No. 2003:2301932, April 2003
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DL	71	Dalton et al., "From molecules to opto-chips: organic electro-optic materials," <u>J. Mater. Chem.</u> , 1999, 9:1905-1920
DL	72	Dalton et al., "Polymeric Electro-optic Modulators: From Chromophore Design to Integration with Semiconductor Very Large Scale Integration Electronics and Silica Fiber Optics," <u>Ind. Eng. Chem. Res.</u> , 1999, 38:8-33
DL	73	Kim et al., "Nonlinear optical chromophores containing dithienothiophene as a new type of electron relay," <u>J. Mater. Chem.</u> , 1999, 9:2227-2232
DL	74	Kojima et al., "Facile Synthesis of Thiophene Derivatives Using a Cyclopropenyl Cation," <u>Synthesis</u> , 1996, 10:1193-1195
DL	75	Raimundo et al., "Huge enhancement of the quadratic nonlinear optical susceptibility in push-pull chromophores based on bridged dithienylethylene spacers," <u>Chem. Commun.</u> , 2000, 17:1597-1598
DL	76	Raimundo et al., "Push-pull chromophores based on 2,2'-bi(3,4-ethylenedioxythiophene) (BEDOT) π -conjugating spacer," <u>Tetrahedron Letters</u> , 2001, 42:1507-1510
DL	77	Reinhardt et al., "Highly Active Two-Photon Dyes: Design, Synthesis, and Characterization toward Application," <u>Chem. Mater.</u> , 1998, 10:1863-1874

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